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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,536	03/25/2002	Jurgen Schellenberg	60843	7879

109 7590 09/01/2004

THE DOW CHEMICAL COMPANY
INTELLECTUAL PROPERTY SECTION
P. O. BOX 1967
MIDLAND, MI 48641-1967

EXAMINER

LU, C CAIXIA

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 09/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/018,536	Applicant(s) SCHELLENBERG, JURGEN	
	Examiner Caixia Lu	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/25/02</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The use of terms “equal to”, “analogous to” and “per rest of” in the definition of formulas (I) to (IV) of claim 1 render the instant claims indefinite and should be avoided.

The selective formats of various groups are improper in that it is not clear whether the individual members in the group are selected in alternatives only or in both alternatives and combinations. In general, when the members of in the group are individually chosen as alternatives, the format, “selected from A, B,..., or X” or “selected from the group consisting of A, B,..., and X”, should be used; and when the members in the group are chosen both in alternatives and combinations, the format “selected from the group consisting of A, B,..., X, and mixtures thereof” should be used. See MPEP 2173.05 (h).

Applicants are requested to amend the selective formats in all of the claims according to the above guidance.

The phrase “Procedure for manufacture” and “**characterized by**” appeared throughout the claims are suggested to be replaced with --The process-- and --wherein-- respectively.

The limitation of "taking place in reversed order" in claim 12 does not have any antecedence.

Claim 13 provides for the use of catalyst composition, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 13 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

The use of "in particular" in claim 13 is improper and should be avoided.

The use of "preferably" in claim 14 introducing multiple ranges to the claims, which renders the claim indefinite.

Improper multiple dependence throughout the claims should be amended.

Specification

3. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.
4. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms

Art Unit: 1713

which are not clear, concise and exact. The specification should be revised carefully in proper idiomatic English in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: (i) the use of term "equal to", "analogous to" and "per rest of" in the definition of formulas (I) to (IV) of pages 3-4; (ii) "taking place in reversed order" in the forth paragraph of page 5; and the list goes on.

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4,6-8, and 10-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Masi et al. (EP 0 861 853, hereinafter Masi).

The Masi's Examples 3-8 on page 10 teach preparations of syndiotactic styrene polymers in the presence of a catalyst composition comprising (pentamethylcyclopentadienyl) titanium tris(trifluoroacetate) and methyl aluminoxane from WITCO (containing about 30 wt. % of trimethyl alumoxane).

The commercially available aluminoxane is a mixture and contains up to 10 wt.% of alkyl aluminum (page 5, lines 50-58) and MAO from WITCO contains 31wt.% of trimethyl aluminum according to Sivaram et al. (5,955,554), see col.4, lines 11-13. Masi's teaching encompasses the instant claims.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Masi et al. (EP 0 861 853, hereinafter Masi).

Claim 5 further limits cyclopentadienyl ring of the metallocene complex to be octahydrofluorenyl and claim 9 limits the organoaluminum compound of formula (III) to be triisobutylaluminum.

Masi's teaching is relied upon as shown above.

It is noted that Masi does not use a metallocene complex containing octahydrofluorenyl and triisobutylaluminum in the catalyst composition of the working examples. However, Masi does expressly teach the cyclopentadienyl ring in the metallocene complex can be cyclopentadienyl, indenyl, fluorenyl, or a derivatives thereof, and tetrahydroindenyl group is listed as the preferred choice (page 4, line 1-31). Therefore, one would immediately envision octahydrofluorenyl as one the choice as well. Masi also expressly teaches that

Art Unit: 1713

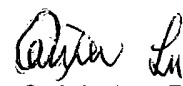
C₁-C₄ alkyl alumoxane can be used in the catalyst composition and isobutyl aluminoxane is one of the most commonly used activators for metallocene catalyst due to its superior solubility in hydrocarbon solvents compared to methyl alumoxane. Therefore, one would also immediately envision using isobutyl aluminoxane as the activator according to Masi's teaching.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Masi's teaching to prepare the syndiotactic styrene polymer in the presence of Masi's catalyst composition wherein catalyst complex is an octahydrofluorenyl containing metallocene and the activator is triisobutylaluminoxane since such is within the scope of Masi's teaching and in the absence of any showing criticality and unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The fax numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.


Caixia Lu, Ph. D.
Primary Examiner
August 30, 2004